being raised and lowered, rotated, and inclined relative to the body portion; and 2) a container having a set of outer walls defining an inner volume. The Office action then takes the position that the Charles reference discloses the claimed vehicle and that the Backteman reference discloses the claimed containers. Finally, the Office action concludes that it would have been obvious to one of ordinary skill in the art to modify the apparatus of the Freeman reference by using the containers of the Backteman reference and the vehicles of the Charles reference.

At page 3, line 12, the Office action indicates that "It would have been obvious to one of ordinary skill in the art to modify the method of Freeman by using the vehicle of Charles in order to allow horizontal movement of the container without moving the body of the vehicle." However, it is submitted that one of ordinary skill in the art would not be motivated to combine the Freeman and Charles references in the proposed manner.

As an initial matter, it is submitted that the vehicle of the Charles reference does not allow horizontal movement of the container without moving the body of the vehicle. Instead, the vehicle of the Charles reference allows vertical movement of a container relative to the body of the vehicle (as does a forklift). Thus, it is submitted that the Office action does not provide a sufficient motivation for the proposed modification.

via extension of boom

rotation of turret

As shown in Fig. 1 of the Charles reference, that reference discloses a mobile crane (see, e.g. column 1, lines 23-26 and lines 56-62). The crane of the Charles reference includes a "spreader" 15 and a L-shaped bracket 9 which includes a generally horizontally-extending arm 11 and a generally vertically-extending arm 10. As noted in Applicant's amendment of June 12, 2002, a spreader is operating by spreading, or expanding, the spreader or boom until each distal end of the spreader is received in a receptacle in the container to be lifted or moved. Thus, the interaction between the expanded spreader and the receptacles on the container enables the vehicle to releasably grasp the container.

However, the Freeman reference is directed to manipulating freight loaded on a pallet (see, e.g. column 1, lines 26-29). Webster's Ninth New Collegiate Dictionary (1988) defines a "pallet" as "a portable platform for handling, storing or moving materials and packages (as in

warehouses, factories or vehicles)." Thus, a because a pallet is a "platform" the sugar of the Freeman reference is stacked on top of the pallet, in the well-known and standard use of pallets.

However, because the freight of the Freeman reference is located on top of the pallet, the spreader 15 of the device of the Charles reference would not be able to access the pallet in order to grip the pallet for lifting because the pallet is located below the freight and the freight and pallet lack the requisite receptacles to receive the ends of a spreader. As noted above, in order for the spreader 15 of the Charles reference to grip a container, each container must include a receptacle to receive the spreader attachment. However, the pallets of the Freeman reference do not include the required receptacles, and thus the spreader of the Charles reference would be unable to grip, lift or move the pallets of the Freeman reference. Instead, a device such as a forklift, which can slide its forks under the freight and into the pallet, may be used to lift the palletized freight of the Freeman reference. Accordingly it is submitted that one of ordinary skill in the art would not be motivated to combine the Freeman and Charles references in the proposed manner, because the resultant system would be inoperative.

modified to use containers of Backteman

Furthermore, as noted above, the device of the Charles reference includes a L-shaped bracket 9 which includes a generally horizontally-extending arm 11 and a generally vertically-extending arm 10. If the device of the Charles reference were attempted to be operated to grip a pallet located on a ground or support surface, the generally vertically extending arm 10 would "bottom out" or abut against the ground surface and prevent the boom 6 from being lowered to the level of the pallet, which in turn prevents the spreader 15 from gripping the freight. Thus, the structure of the device of the Charles reference prevents that device from being used in the manner proposed in the Office action.

Furthermore, it is submitted that one of ordinary skill in the art would not be motivated to use the vehicle of the Charles reference on the barge of the Freeman reference. The vehicle of the Charles reference is essentially a mobile crane which lacks the requisite mobility and agility to load and unload vehicles on a marine vessel. For example, as shown in Fig. 2 and described at column 2, lines 38-43, the vehicle of the Charles reference includes stabilization or outrigger supports 17 which must extend outwardly from the body of the vehicle. When lifting loads or

extending the boom 6, the outrigger supports 17 are lowered until the outrigger supports lift the wheels of the vehicle off of the ground. These outrigger supports are required whenever the boom 6 is extended (see Fig. 2). For example, print outs from the web pages www.jlab.org and www.safetyline.wa.gov.au, which include safety standards and recommendations for the operation of mobile cranes, are enclosed. These print outs specify that outrigger supports should be extended during operation of a mobile crane ("When traveling, or using mobile cranes on Jefferson Lab property...Ensure the crane operator has completely extended all outrigger beams"; "Crane operators should never attempt to extend the boom unless all outriggers, where required, are extended and down on a hard surface, with the crane level").

not claimed

Furthermore, the vehicle of the Charles reference lacks mobility. As shown at Figs. 1 and 2, and discussed at column 2, lines 8-9, the vehicle of the Charles reference includes a turret 4 which is pivotable about a vertical axis. The turret 4 can be pivoted such that the operator can face a variety of directions when operating the boom 6. The turret 4 is used because the vehicle of the Charles reference lacks mobility, and because the vehicle cannot be moved when the boom is extended.

Thus, if the vehicle of the Charles reference were to be used in the system of the Freeman reference, the vehicle would first have to be driven to the vicinity of the container to be lifted. The supports 17 would then be lowered until the wheels of the vehicle are lifted off of the ground. The operator would extend the boom 6 as the operator turns in the turret 4 to control the loading operation. Once the load is lifted, the boom 6 would have to be retracted and the supports 17 would be raised to lower the vehicle onto the wheels. The operator could then drive the mobile crane forward in a generally straight line. The vehicle could not make any sharp turns due to the configuration of the vehicle.

Don't see support in ref.

The vehicle would then have to be driven over a ramp and onto the marine vessel. Once the vehicle is located in the correct location, the outrigger supports 17 would then be lowered until the wheels are lifted off of the deck of the marine vessel. The boom 6 would then be extended and the load would then be lowered at the desired location as the operator turns in the turret. Once the load is lowered in place, the boom 6 would be retracted and the supports 17

would be lifted off of the ground to return the weight of the vehicle onto the wheels. The vehicle would then be driven in a generally straight line over the ramp and off of the marine vessel.

Thus, it can be seen that the loading and unloading of containers using the vehicle of the Charles reference is a slow and inefficient stop-and-start process. In particular, the use of the supports 17 and the extending/retracting of the boom adds additional steps each time a container is lifted or lowered, which requires additional time and significantly slows down the loading/unloading process. Furthermore, because when used the supports are splayed outwardly from the sides of the vehicle, the vehicle of the Charles reference requires significant clearance on either side of the vehicle to accommodate the supports. This means that the stacks of containers on the marine vessel and on the loading dock must be spaced a sufficient distance to accommodate the vehicle and its supports in their operation position. The lack of maneuverability of the vehicle of the Charles reference also requires large spacing between the stacks of containers. This wide spacing of the containers results in an inefficient shipping operation and wasted space on both the loading dock and the marine vessel.

As noted above, the vehicles of the Charles reference are designed primarily for use as a "mobile crane." For example, the device of the Charles reference is typically anchored at a dock location adjacent to a marine vessel or rail car. Vehicles that are more mobile and agile than the mobile crane carry containers to be loaded and place them adjacent to the mobile crane of the Charles reference, which then grips the containers and lifts them onto the marine vessel or rail car, as shown in Fig. 2 of the Charles reference. Thus, the vehicle of the Charles reference is used in a system which utilizes different vehicles to carry out differing steps of the loading process. In contrast, in the system of the present invention the containers are lifted, carried onto the marine vessel, and placed on the marine vessel, all by a single vehicle.

The reach stackers disclosed in this application are maneuverable and sufficiently stable that they do not require outrigger supports, even when the boom of the reach stacker is extended. The reach stacker includes safety devices (such as limit switches) to ensure the reach stacker remains within machine capabilities. Therefore, due to the fact that the vehicles of the Charles reference requires outrigger supports and is not maneuverable, it is submitted that one of

ordinary skill in the art would not use the vehicle of the Charles reference on a marine vessel, such as in the system of the Freeman reference.

Finally, it is submitted that even if the Charles reference were combined with the Freeman reference, that the subject matter of the claims would not be shown. Each of independent claims 16, 22, 24 and 25 specify that the vehicle includes a gripping portion that is capable of being raised and lowered, rotated, and inclined relative to the body portion. The gripping portion of the Charles reference appears to be able to be raised and lowered (by cylinder 8) and inclined (by cylinder 14), but the gripping portion is not capable of being rotated relative to the body portion. The ability of the gripping portion to be rotated enables the vehicle of claims 16, 22, 24 and 25 to position the containers and precisely stack them in the desired position. Thus, it is submitted that the vehicle of the Charles reference lacks the range of motion defined in claims 16, 22, 24 and 25, and therefore those claims define over the cited references even if the references are combined in the manner suggested in the Office action.

New claims 41-54 add various distinctions of the present invention over the device of the Charles reference as discussed above. New claim 53 specifies that the container are stacked at least three containers high, as disclosed at page 9, line 4 and Fig. 2 of the originally-filed application. In contrast, the device of the Charles reference apparently can only be used to stack containers to a height of two containers. New claim 54 specifies that the bow of the marine vessel is pointed to improve the efficiency of the towing step, which is not shown in the cited references.

Furthermore, it is submitted that one of ordinary skill in the art would not be motivated to combine the Freeman and Backteman references in the proposed manner because the resultant system would be inoperable. In particular, the Freeman reference discloses a forklift truck 30 that is used to load pallets. The forklifts illustrated therein are relatively small forklifts (i.e. illustrated as not much larger than the operator) and have a low, unprotected seating area. However, the containers of the Backteman reference are indicated to be ISO containers, which are generally 20 or 40 feet long, 8 feet wide and 8 or 8½ feet high (see printout of web page

located at www.conrail.de/conrail_container_standards_re.html included in applicant's amendment of April 22, 2002).

Thus, if the forklifts of the Freeman reference were used with the containers of the Backteman reference, the lifted container would be located directly in front of the operator of a forklift and the operator would not be able to see over the containers. Furthermore, it is submitted that even if the forklifts of the Freeman reference were able to lift the containers to a sufficient height such that the operator could see under the container, one of ordinary skill in the art would not be motivated to due so due to the instability of the relatively small forklifts of the Freeman reference when lifting large, heavy containers to such heights. It is also submitted that one of ordinary skill in the art would not lift the containers in this manner, and due to the fact that the forklifts of the Freeman reference lack a protected cab area to protect the operator from debris falling off of the lifted container, or dues to roll-overs of the forklift.

Applicant appreciates that the Office action relies upon the description of the freight handling method of column 1, lines 20-39 of the Freeman reference and not necessarily the remaining disclosure of the Freeman reference including the forklifts 30 described therein. However, it is submitted that the forklifts 30 described and shown in the Freeman reference are the same type of forklifts contemplated at the disclosure of column 1, lines 20-39, especially in light of the fact that the Freeman reference does not include any indication that the forklifts 30 described therein would differ from those described in the passage of interest. The Freeman reference indicates that the novelty of that invention lies in the method of handling freight using existing equipment, and not in the use of any different type of equipment or forklift. Furthermore, the Office action notes that column 1, lines 20-39 of the Freeman reference discloses a ramp, but the Office action relies upon the ramp in Fig. 3 of the Freeman reference, for example, in the rejection of claim 22. Thus, the Office action itself indicates that the remainder of the Freeman reference has been used to interpret the passage at column 1, lines 20-39.

Furthermore, it is noted that the containers of the Backteman reference can store significantly more volume that a stacked pallet. For example, assuming a 4'x4' pallet can hold a

4'x4'x4' stack of freight, in this case a single pallet can hold 64 cubic feet. In contrast, according to the immediately aforementioned web page printout, a 20'x8'x8' container of the Backteman reference may have an inner volume of about 1060 cubic feet, and a 40'x8'x8½' container may have an inner volume of about 2360 cubic feet. Thus, the container of the Backteman reference can hold between about 16-37 times the volume of the sugar of the pallets of the Freeman reference.

Thus it is submitted that the forklifts described in the cited section of the Freeman reference would not be able to lift a container and 16-37 times the weight normally lifted by the forklifts. It is normal and standard engineering design to select equipment that is configured to carry out the normal and expected operations, but it is of course inefficient and poor engineering design to use equipment that is significantly more powerful than required, and therefore is not normal and standard engineering design to use forklifts that can lift 16-37 or more times the weight during normal operations. Thus it is submitted that the forklifts of the Freeman reference would not be able to be lift and maneuver the containers of the Backteman reference.

Finally, it is submitted that if the Freeman and Backteman references were combined in the proposed manner, the system would be inoperable because the ramp of the Freeman reference would not be able to support the 16-37 or more times weight of the additional cargo. Each of claims 16, 22, 24 and 25 specify that the ramp has sufficient strength to support the vehicle when the vehicle is transporting a fully loaded container, which further distances the invention from the cited references.

In sum, for the reasons discussed above, it is submitted that the Freeman, Backteman and Charles references cannot be combined in the manner suggested in the Office action, and it is requested that the rejection of the claims over the combined references be withdrawn.

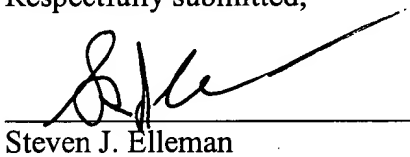
Claim 25 has been amended to clarify that the claims can cover both unloading or loading of container from or to a marine vessel. Claim 35 has been amended to accommodate the amendment of claim 25.

Applicant hereby requests a two-month extension of time under 37 C.F.R. §1.136, and the fee for the extension of time accompanies this Amendment. The Commissioner is hereby

authorized to charge any additional fees which may be required by this paper, or to credit any overpayment to Deposit Account 20-0809. Applicant hereby authorizes the Commissioner under 37 C.F.R. §1.136(a)(3) to treat any paper that is filed in this application which requires an extension of time as incorporating a request for such an extension.

In view of the foregoing amendments and arguments, the application appears to be in a condition for allowance, and a formal notice thereof is requested.

Respectfully submitted,



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MARKED-UP COPIES OF AMENDED CLAIMS

25. (Five Times Amended) A method of transporting containers with a marine vessel comprising the steps of:

selecting a plurality of containers adapted to contain and protect freight in a marine environment, each container having a set of outer walls defining an inner volume and having freight loaded therein;

providing a vehicle including a body portion and a gripping portion including a spreader attachment, said gripping portion being capable of being raised and lowered, rotated, and inclined relative to said body portion;

lifting a container by means of said vehicle;

causing said vehicle to travel over a ramp to or from a storage deck of a marine vessel, said ramp and storage deck having sufficient strength to support said vehicle when said vehicle is transporting a fully loaded one of said containers;

positioning said container at a desired location on [said deck] a support surface by means of said vehicle; and

repeating said lifting, causing and positioning steps for each of said plurality of containers.

35. (Amended) The method of claim 25 further comprising the steps of securing said containers to said [deck] support surface at said locations, and towing said marine vessel with said containers secured to said [deck] support surface thereof to a destination site.

Required Practices

[6140-T2 Use of Mobile Cranes on Jefferson Lab Property --- Rev. November 16, 1996]

SOTRs, supervisors, employees, or user/owners

When traveling, or using the mobile cranes on Jefferson Lab property, it is your responsibility to insure that the following SURA/Jefferson Lab requirements are met when subcontracting or leasing mobile cranes. The crane operator has the over-all responsibility for insuring the load is safe for lifting.

Supervisors ensure that vehicles or other obstructions are moved as necessary.

Check clearances under overhead lines, or any overhead obstruction.

The crane shall be positioned on a solid and level footing with no more than one degree of grade if possible. It may be necessary in certain situations to use heavy timber mats to build a good working foundation. Don't assume the operator is completely aware of his or her surroundings.

When side clearances are tight, install a barrier or post a lookout, and make certain there is sufficient clearance for tail swing.

Use one or all of these types of safety equipment:

- orange and white striped barriers
- orange cones
- yellow caution tape
- personnel directing vehicle and pedestrian traffic -- the best option

When two or more cranes are used to lift one load, one designated person shall be responsible for the operation. That person shall analyze the operation and instruct all personnel involved in the proper positioning and rigging of the load. The movement must always be made with the utmost consideration for safety.

Maintain communication between the crane operator, signal person, and safety lookout.

Ensure the crane operator has completely extended all outrigger beams.

The crane shall not be loaded beyond its rated capacity.

Secure and balance the load in the sling or lifting device before it is lifted more than a few inches.
Check to ensure that the lift and swing path is clear of obstructions.
When used indoors (target halls, Test Lab, etc.) insure exhaust ventilation is activated.

Crane breakdown

In the event a mobile crane breaks down with a suspended load intact:

- The area will be cordoned off to prevent personnel from walking under the load.
- A suspended load will not be left unattended.

If a crane is damaged in an accident during a lifting operation, secure the area.

- **Call 911 -- if personal injury has occurred** , and then notify the Building Manager, Supervisor, and MHSR

Work stoppage

When significant disagreement exists regarding the safe use of a Mobile Crane: Secure the load in a stable manner.

- Involve the SOTR, Supervisor, and MHSR, if applicable.
- And reference the following (this pertains to all parties involved):
  - This manual
  - OSHA 29 CFR 1910 (General Industry)
  - ANSI B-30 series
  - DOE Hoisting and Rigging Manual (Chapter 12 DOE Safety Manual)

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Feedback on the format and content of this manual may be sent to ehsdocs@jlab.org.

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OPERATION

DOCUMENTATION

The documents you would expect to find in a crane cab are:

a. crane manufacturer's operators manual;

b. record logbook; and

c. copy of current plant registration (for mobile cranes greater than 10 tonne capacity).

LOAD CHART

One of the most important items in the crane is the load chart, which sets out the safe working loads in various configurations. This allows the crane driver to operate safely, within the parameters of the manufacturer's load chart.

GENERAL OPERATION

The ability of the crane operator is a very important factor in the safe performance of the crane during lifting operations. Most hazards can be avoided by exercising care and a common sense approach to crane operation.

Pre-Operational checks

Before commencing operations, the crane operator is required to carry out pre-operational checks in accordance with the instructions provided in the manufacturer's operator's manual.

SETTING UP THE CRANE

Extending Outriggers

Crane operators should never attempt to extend the boom unless all outriggers, where required, are extended and down on a hard surface, with the crane level. Operators should read and fully understand the crane load chart, including all notes, and have read the operator's manual before attempting to use the crane. Cranes have lost stability and tipped over, with no load on the hook, because the operator had not extended the outriggers as per the manufacturer's instructions.

Axle Lockouts

Operators, when operating a mobile crane fitted with axle lockouts, should regularly check that they are functioning correctly. If the axle lockouts are not used as per the manufacturer's requirements, then the stability of the crane is greatly reduced.

Ground Conditions

Crane operators should always make enquiries about site conditions from a person at the site who has a good working knowledge of all underground hazards. For example, the position of drainage pipes or soak wells at the site.

ONLY FREELY SUSPENDED LOADS TO BE LIFTED

There have been a number of incidents over the years where operators have attempted to remove a tree that had been partly dug out. A number of cranes have sustained structural damage from lifting a load that was not completely free, its weight being underestimated by personnel on site. Personnel involved in removing a tree should spend time and actually measure the root ball and surrounding soil, to obtain an accurate weight before having the crane operator attempt to lift the load.

KEEP CLEAR OF POWER LINES DURING OPERATION

Power line contact is the largest single cause of fatalities associated with crane users. The crane operator, before setting up a crane, must check for the proximity of power lines and exercise extreme care during lifting operations. Crane operators are required to maintain a clear distance, from any part of the crane or load, of two metres for distribution lines on poles and six metres from transmission lines on towers.

LEAVING A MOBILE CRANE UNATTENDED

LATTICE BOOM
a structure consisting of chord members that are held in place by bracing.

Crane operators should always check that the crane is correctly stowed before leaving the site. In particular, in adverse weather conditions a hydraulic crane boom should be completely retracted, and lattice boom cranes should have the boom lowered onto trestles with the slew brake and slew lock applied.

NOTE: Operators are not to leave the crane cab while a load is suspended from the crane hook.

ACCESS TO CRANES

Extreme care should be taken by the crane operator when entering or leaving the crane cabin. Crane operators should take particular care in wet and slippery conditions.

MULTIPLE CRANE LIFTS

Multi-crane hoisting should not take place unless in accordance with the following; and appropriate reductions, in accordance with load charts, achieved.

(a) Do the physical dimensions and mass of the load prevent it from being handled by any single crane?

(b) Load chart reduction for multiple lifting -

Two cranes: The crane operator is to reduce the SWL load by 16 2/3%. This allows the operator to lift a load up to 83 1/3% of the crane's load chart in any particular configuration.

Three Cranes: The crane operator is to reduce the SWL load by 25%. This allows the operator to lift a load up to 75% of the crane's load chart in any particular configuration.

Four Cranes: The crane operator is to reduce the SWL by 331/3%; This allows the operator to lift a load up to 66 2/3%.of the cranes load chart in any particular configuration.

(c) Hoisting must be supervised by a competent person (intermediate rigger or advanced rigger) who is not otherwise involved in the operation.

(d) Cranes must be fitted with a winch to be considered acceptable for multi-crane lifting.

NOTE: For additional information, refer to AS2550.1 - 1993, section 7.19 *Multiple Crane Operation*.

Operational Requirements when Lifting Personnel in a Workbox

(a) Crane must have drive-up and drive-down controls on both the hoisting and luffing motions.

(b) Crane operator must remain at the controls of the crane.

(c) Crane operator must ensure that the crane has a minimum safe working load of one tonne in the configuration that the workbox is to be lifted.

(d) Further to (c) above, when the crane is in a configuration to lift a workbox, personnel and equipment (which includes the headache ball), then the crane is to maintain twice the safe working load capacity of all the combined deductions.

(e) The crane operator must not travel the crane with personnel in the workbox.

WORKBOX
a personnel-carrying device, designed to be suspended from a crane, which provides a working area for persons elevated by and working from the box.

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